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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/752,371	12/29/2000	David J. McDonnell	042390.P8830	1524

7590	05/24/2004

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EXAMINER
NGUYEN, PHUONGCHAU BA

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 05/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/752,371	MCDONNELL, DAVID J.
	Examiner	Art Unit
	Phuongchau Ba Nguyen	2665

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _29 December 2000_.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-28_ is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☒ Claim(s) _10,24 and 28_ is/are allowed.
6)☒ Claim(s) _1-9,11-23 and 25-27_ is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on _29 December 2000_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
        1.☐ Certified copies of the priority documents have been received.
        2.☐ Certified copies of the priority documents have been received in Application No. _____.
        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
            application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _6-5-03_.
4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Specification

1.   Applicant is reminded of the proper language and format for an abstract of the disclosure.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc. Therefore, "according to one embodiment, a memory controller is disclosed." should be deleted from line 1 of original abstract.

Claim Objections

2.   Claim 8 is objected to because of the following informalities: "6" should

be changed to ---7--- to be consistent with other claimed set (i.e., claims 21–

22, wherein claim 22 has the same limitation as claim 8 which further limits to

claim 21, which has the same limitation as claim 7) and to avoid claim 8 being

lack of antecedent basis. Appropriate correction is required.

Claim Rejections – 35 USC § 112

3.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4.   Claims 6-14 and 20-24 are rejected under 35 U.S.C. 112, second

paragraph, as being indefinite for failing to particularly point out and distinctly

claim the subject matter which applicant regards as the invention. Claim 6

recites the limitation "the RAC interfaces" in line 2. There is insufficient

antecedent basis for this limitation in the claim.

        Claims 7-14 and 21-24 are rejected as being depended on claims 6 and

20.

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

> A person shall be entitled to a patent unless -
>
> (e) the invention was described in a patent granted on an application for patent by another
> filed in the United States before the invention thereof by the applicant for patent, or on an
> international application by another who has fulfilled the requirements of paragraphs (1), (2),
> and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

        The changes made to 35 U.S.C. 102(e) by the American Inventors

Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology

Technical Amendments Act of 2002 do not apply when the reference is a U.S.

patent resulting directly or indirectly from an international application filed

before November 29, 2000. Therefore, the prior art date of the reference is

determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-

AIPA 35 U.S.C. 102(e)).

6.   Claims 1, 3-6, 8, 15, 17-20, 22 are rejected under 35 U.S.C. 102(e) as

being anticipated by Swaminathan (6,381,658).

Regarding claims 1, 15:

Swaminathan (6,381,658) discloses a computer system (fig.1) comprising

a memory controller (22) that includes a slot-based controller (30), wherein the

slot-based controller is adaptable to launch a packet that straddles a first fixed

packet slot and a second fixed packet slot {col.1, lines 59-62}.

Regarding claims 3, 17: Swaminathan further discloses wherein the packet is

tagged with an attribute that indicates that the packet is straddling the first

fixed packet slot and the second fixed packet slot {col.1, lines 57-62}.

Regarding claims 4, 18: Swaminathan further discloses wherein the attribute is

a Rambus clock offset {col.3, lines 14-19, 31-34}.

Regarding claims 5, 19: Swaminathan further discloses wherein the packet is a

Rambus control packet {col.2, lines 9-11}.

Regarding claims 6, 20: Swaminathan further discloses wherein the memory

controller further comprises a Rambus Asic Cell (RAC), wherein the RAC

interfaces with a high frequency expansion channel {col.3, lines 3-7}.

Regarding claims 8, 22: Swaminathan further discloses wherein the rules

checker uses entries in the past packet queue to validate future slot choices for

the scheduler {col.3, lines 35-52}.

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or
> described as set forth in section 102 of this title, if the differences between the subject
> matter sought to be patented and the prior art are such that the subject matter as a whole
> would have been obvious at the time the invention was made to a person having ordinary
> skill in the art to which said subject matter pertains. Patentability shall not be negatived by
> the manner in which the invention was made.

8.   Claims 2 and 16 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Swaminathan (6,381,658).

Regarding claims 2, 16:

Swaminathan does not explicitly disclose that the packet launched in

advance one half of a slot position. However, Swaminathan further discloses

wherein the packet launch position is advanced one half of a slot position

relative second fixed packet slot {col.1, lines 59-62}. Therefore, it would have

been obvious to an artisan to specify a specific amount of time such as one half

of slot position in the timing constraints between different packets with the

motivation being to provide variable timing constraints between different

packets to insure the proper operation of the read and write operation.

9.   Claims 7, 9, 21, 23, 25-27 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Swaminathan (6,381,658) as applied to claims 1-6 above,

and further in view of Barth (6,154,821).

Regarding claims 7, 21, 25:

Swaminathan does explicitly disclose wherein the slot-based controller

comprises: a scheduler; a rules checker coupled to the scheduler; a future

packet queue coupled to the scheduler and the rules checker; and a past packet

queue coupled to the future packet queue, the scheduler and the rules checker.

However, in the same field of endeavor, Barth (6,154,821) discloses

wherein the slot-based controller (130) comprises: a scheduler (132); a rules

checker (136) coupled to the scheduler; a future packet queue (110-116)

coupled to the scheduler and the rules checker; and a past packet queue (110-

116) coupled to the future packet queue, the scheduler and the rules checker.

Therefore, it would have been obvious to artisan to apply Barth's teaching to

Swaminathan's system with the motivation being to deal with timing problem

wherein the memory system at a high frequency is propagation delay between

the memory controller an some memory devices is longer than one clock cycle.

Regarding claims 9, 23, 27:

Swaminathan does not explicitly disclose wherein the past packet queue

and the future packet queue are unidirectional shift registers. However, in the

same field of endeavor, Swaminathan further discloses in figure 2 wherein

packets in queue transmitted in unidirectional (the first packet is scheduled to

be transmitted first, then scheduled for transmitting the second packet after

that) {fig.2}. Therefore, it would have been obvious to an artisan to express the

queues in Swaminathan as unidirectional. This is a common practice in the art.

Regarding claim 26: Swaminathan further discloses wherein the advance packet

launch is accomplished by straddling the packet on a first fixed packet slot and

a second fixed packet slot, wherein the first packet slot is designated for a

previously scheduled packet {col.1, lines 54-62}.

10.   Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Swaminathan (6,381,658) as applied to claims 1-6 above, and further in

view of Freker (6,564,335).

Regarding claim 11: Swaminathan does not explicitly disclose an expansion

channel coupled to the RAC within the memory controller; and a repeater

coupled to the expansion channel. However, in the same field of endeavor,

Freker (6,564,335) discloses an expansion channel coupled to the RAC (225)

within the memory controller (220, fig.2); and a repeater (250) coupled to the

expansion channel.   Therefore, it would have been obvious to an artisan to

apply Freker's teaching to Swaminathan's system with the motivation being to

provide monitoring the expansion channel for activity and repeat the activity on

one or more of the stick channel coupled thereto.

Regarding claim 12: Swaminathan does not explicitly disclose a stick channel

coupled to the repeater; and a plurality of memory devices coupled to the stick

channel. However, in the same field of endeavor, Freker (6,564,335) discloses

a stick channel (stick 1, stick 2, fig.2) coupled to the repeater (250); and a

plurality of memory devices (fig.2) coupled to the stick channel {fig.2}.

Therefore, it would have been obvious to an artisan to apply Freker's teaching

to Swaminathan's system with the motivation being to permit 128 memory

devices to be accessed by memory controller.

Regarding claim 13: Swaminathan further discloses wherein the memory

devices are Rambus Dynamic Random Access Memories (RDRAMs) {fig.1}.

Regarding claim 14: Swaminathan does not explicitly disclose a plurality of

memory devices coupled to the expansion channel. However, in the same field

of endeavor, Freker discloses a plurality of memory devices coupled to the

expansion channel {fig.2}. Therefore, it would have been obvious to an artisan

to apply Freker's teaching to Swaminathan's system with the motivation being

to permit 128 memory devices to be accessed by memory controller.

Allowable Subject Matter

11.   Claims, 10, 24, 28 are objected to as being dependent upon a rejected

base claim, but would be allowable if rewritten in independent form including

all of the limitations of the base claim and any intervening claims.

12.   Any inquiry concerning this communication or earlier communications

from the examiner should be directed to Phuongchau Ba Nguyen whose

telephone number is 703-305-0093. The examiner can normally be reached

on Monday-Friday from 10:00 a.m. to 2:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Huy Vu can be reached on 703-308-6602. The fax

phone number for the organization where this application or proceeding is

assigned is 703-872-9306.

Information regarding the status of an application may be obtained from

the Patent Application Information Retrieval (PAIR) system. Status information

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PAIR. Status information for unpublished applications is available through

Private PAIR only. For more information about the PAIR system, see

http://pair-direct.uspto.gov. Should you have questions on access to the

Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-

9197 (toll-free).

Phuongchau Ba Nguyen
Examiner
Art Unit 2665

DUC HO
PRIMARY EXAMINER

5- 19-04